INTERNATIONAL ACTIVITY TRIP REPORT
FOREST HEALTH SURVEILLANCE
COFFS HARBOUR, AUSTRALIA
October, 25 – November 3, 2006

Dustin Wittwer, FHP Aerial Survey Specialist, R10, Ankorage, AK
and
Dayle Bennett, FHP Group Leader, Boise Field Office, R4, Boise, ID

Purpose of Travel: To participate in the Australia/New Zealand Forest Health Surveillance Workshop at Coffs Harbour, New South Wales, Australia.

Pictures and brief descriptions of this field trip can be seen at the follow link: http://www.fs.fed.us/r10/spf/fhp/AU_slides/default.html

At the request of Dr. Mike Cole (Deputy Chief Plant Protection Officer with the Product Integrity and Animal and Plant Health Department of Agriculture, Fisheries and Forestry Commonwealth of Australia) and Dr. Angus Carnegie (Research Pathologist with the Department of Primary Industries (DPI), New South Wales (NSW), Australia), we traveled to Sydney, Australia on October, 24 – 25, 2006. The purpose of our visit was to participate in the Australia/New Zealand Forest Health Surveillance Workshop. Specifically, we were requested to make presentations regarding aerial detection methodology in the U.S. and our digital sketchmapping system (Dustin); an aerial detection survey accuracy assessment (Johnson, et. al. 2006) (Dustin); the U.S. Forest Health Monitoring Program (Dayle); and, our Early Detection and Rapid Response program (Dayle).

Angus Carnegie picked us up at the Sydney airport and was our host during this trip. We spent the afternoon of October 25 and the morning of October 26 at the NSW DPI offices located on the outskirts of Sydney at Cumberland State Park. There we met with forest health specialists and GIS specialists to discuss their various programs, issues, and technologies relative to forest health in New South Wales. We also called upon their expertise in assisting Dustin with GIS layers of local forested areas. Dustin needed these layers so he could demonstrate the digital sketchmapping system in real time using local data.

During the afternoon of October 26, Angus transported us by truck to the NSW coastal town of Coffs Harbour, located seven hours north of Sydney. There we spent much of our time in Australia.

On October 27, we accompanied Angus and his colleague, Darryl Coffey, on an all-day field trip to "the bush." The purpose of this field trip was to locate sites for the workshop fieldtrip, held later in the week. The trip also afforded us the opportunity to view and discuss a number of forest insect and disease occurrences in this part of Australia. We

visited a variety of eucalyptus plantations that represented several different species of eucalyptus. We were amazed at the rapid growth of these trees, many of which reach six to seven inches in diameter and a height of 40 to 50 feet in just five years. Although many of these plantations appeared healthy, many others are being damaged by numerous insect and disease agents whose effects are likely enhanced by the current seven year long drought. This drought is adversely impacting the entire continent.

We saw and discussed several eucalyptus diseases including mycosphaerella leaf spot, phaeophleospora leaf disease, and quambalaria blight. We also saw and discussed numerous insect problems on eucalyptus trees, including: chrysomelid leaf beetles; weevils (*Gonipterus* and *Oxyops* spp.); longhorn (longicorn) beetles (*Phoracantha* spp.); Creiis psyllid (*Creiis lituratus*); and, cossid moth (*Endoxyla cinerea*). Most of the affected trees are able to recover from these insects and pathogens.

Localized high populations of Creiis psyllid are causing severe defoliation. The cossid moth is also quite prevelant, especially in some of the *eucalyptus grandis* plantations. While a cossid moth infected tree may recover from the cossid moth larvae feeding in the bole of the tree, it often can't recover from the severe damage caused by cockatoos that rip apart wide, deep sections of the bole to feed on the large larvae within. This often results in the tree breaking off and toppling over. We also observed a couple eucalyptus plantations that were heavily infected by mistletoe (Amyema sp.), the seeds of which are transmitted by birds.

Most forest health surveillance and forest management is conducted on Australia's forest plantations…eucalyptus and introduced pines. However, Australia also has a great many native forests, most of which are in National or State conservation parks. On October 28, Angus and Darryl took us, along with David and Ian Smith (forest pathologists from Victoria) to visit one of these parks, Dorrigo National Park. This park is in a lush, beautiful rain forest located high on Australia's continental divide. It contains over 140 tree species, most of which are visible (if one could differentiate them on sight) from the visitor center "tree canopy walkway."

After leaving Dorrigo National Park, we stopped to look at a young plantation of *Eucalyptus nitens* that is suffering severe defoliation, caused by a leaf fungus, *Phaeophleospora eucalypti.* These weakened trees are subsequently attacked and killed by a stem canker, *Cytospora eucalypticola*. At another stop, we saw a considerable amount of termite (*Coptotermes* spp.) activity. These termites feed on the heartwood of living trees, mining out a goodly portion of the bole without killing the tree.

On October 29, we attended a day-long meeting of the "Forests and Forests Products Committee Research Working Group 7 (Forest Health) Workshop." This group is made up of approximately thirty forest health researchers/specialists from across Australia and New Zealand, who come together every two years to discuss common business and current/emerging forest health issues. Forest health highlights for each State and New Zealand were presented by the following individuals:

New Zealand	Margaret Dick and John Bain
Queensland	Simon Lawson, Geoff Pegg and Michael Ramsden
New South Wales	Angus Carnegie
Victoria	Ian Smith
Tasmania	Tim Wardlaw and Dick Bashford
Western Australia	Richard Robinson and Ian Dumbrell
South Australia	Charlma Phillips
Ensis*	Caroline Mohammed

*Ensis is a federal forest research and wood products cooperative between Australia and New Zealand.

Other topics discussed included: quarantines; the RWG 7 operating plan; pesticide availability; new pathogens of potential quarantine concern; mushroom import risk assessment; phytophthora ramorum; low environmental hazard pesticides and application technologies; Australia's State of the Forests Report; biosecurity; international activities; and, soil and water borne pathogens. The group capped off this long and productive day by adjourning to a nearby restaurant to roast, toast and salute one of their distinguished (and obviously revered) members, Ross Wylie, who has recently retired from the Queensland Horticulture and Forestry Science Department of Primary Industries and Fisheries.

On October 30, we participated in, and made presentations to, the "Australia Forest Health Surveillance Workshop." The morning's presentations were devoted to Forest Health Surveillance while the afternoon's presentations were aimed at Biosecurity Surveillance. Following is a list of the presentations and discussions that took place during the day's agenda:

- Forest Health Surveillance Methodology in Australia
    - New South Wales (Angus Carnegie)
    - Queensland (Simon Lawson, Michael Ramsden)
    - Victoria (Ian Smith, David Smith)
    - Tasmania (Carl Weatherspoon)
    - South Australia (Charlma Philips)
    - Western Australia (Richard Robinson, Ian Dumbrell)

- Pest Detection, Pest Status and Long Term Forest Condition Monitoring Systems in New Zealand (Lindsay Bulman, NZ)
- USA Aerial Detection Survey Methodology and Digital Sketchmapping – On the Fly GIS (Dustin Wittwer, USDA Forest Service, Alaska)
- An Overview of the U. S. Forest Health Monitoring Program (Dayle Bennett, USDA Forest Service, Idaho)
- Development of Hazard Site Surveillance Systems for Forest Pests in Australia (Ross Wylie, Queensland)
- Static Trapping to Detect Wood and Bark Insects (Dick Bashford, Tazmania)

- The Second Line of Biosecurity Defense – Risk Site Surveillance (Lindsay Bulman, Ensis)
- Early Detection and Rapid Response of Non-Native Bark and Ambrosia Beetles Program (Dayle Bennett)

We resumed the Forest Health Surveillance Workshop on the following day, October 31, with several additional presentations, including:

- Application of Remote Sensing Technologies for the Assessment and Monitoring of Forest Health (Christine Stone, NSW)
- Linking Lazer Rangefinders with GIS Technologies for Aerial Surveys (Michael Ramsden, Queensland)
- Phytophthora Dieback Surveys in Western Australia (Richard Robinson, WA)
- Proposed Forest Health Surveys in Native Forests in Western Australia (Richard Robison)
- Efficiency of Routine Surveillance in Detecting Damage in Young Eucalyptus Plantations (Tim Wardlaw)
- Rocky Mountain Region (USDA Forest Service) Forest Health Aerial Survey Accuracy Assessment 2005 (Dustin Wittwer)
- Linking Operational Outcomes to Forest Health Surveillance (Tim Wardlaw)

During the afternoon, the workshop participants openly discussed several topics including: tree improvement objectives; Creiss psyllid defoliation; leaf insects on *Eucalyptus grandis*; genetic research associated with cossid moth; forest health surveillance accuracy; and, increased collaboration with the U.S., Canada and New Zealand counterparts.

On October 31, we joined the Australia Forest Health Surveillance Workshop participants on a day-long fieldtrip to several plantations north of Grafton, NSW. While driving through Grafton, we encountered a sizeable throng of people celebrating Grafton's "Jacaranda Festival." Jacarandas have been introduced from South Africa and planted as ornamentals in some cities and towns in NSW. At this time of the year, they are adorned with beautiful lavender or white blossoms.

Foresters from the local DPI district met us at our first stop. There they gave us a safety briefing which included a helicopter evacuation plan (I imagined that was in case of poisonous snake or spider bites!). The thought of that was both comforting and unnerving. Fortunately, and probably as might be expected, no one was bitten or otherwise injured.

We made several stops during this field trip in which we observed and discussed numerous insect and disease problems, including: mistletoe in *E. dunii*; creiss psyllid defoliation of *E. dunii*; Quambalaria shoot blight on spotted gum (*Corymbia* spp.); and *mycosphaerella suberosa* leaf spot on *E. dunii*. We also looked at a few plantations of eucalyptus hybrids that are apparently healthy and growing rapidly. The average growth of the eucalyptus hybrids in one of these plantations is nine meters in 18 months. The

best growth recorded in this plantation is 14 meters in 18 months. At another stop, we observed a couple of plantations (comprised of *pinus taeda* and *p. elliota*) that were burned last summer in a wildfire. Many of the burned trees (1 to 4 inches in diameter) were subsequently attacked by *Ips typgraphus*, followed later by termites. Our last stop of the trip was at a eucalyptus plantation that had also burned over last year by a wildfire. Surprisingly, most of these trees will survive the fire even though their boles have been scorched.

Our final work day of this trip was on November 2. In the morning, we drove to the Regional State Forestry Office in Coffs Harbour. There Dustin made a presentation to several local foresters and fire management specialists about our digital sketchmapping system. He also took some of them out for a "hands-on" demonstration. Many of those folks were duly impressed with the system and could see an immediate application to their respective work situations. At morning's end, we bid farewell to our Australian Forest Health Surveillance mates, then Angus transported us back to Sydney.

Literature Cited

Johnson, Erik W., and Jennifer Ross. 2006. *USDA Forest Service Rocky Mountain Region Forest Health Survey Accuracy Assessment 2005 Report*. USDA Forest Service Technical Report R2-06-08. 14pp.